



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,473	02/05/2004	George Bokisa	TASKP103US	4978
23623	7590	05/23/2005	EXAMINER	
AMIN & TUROCY, LLP 1900 EAST 9TH STREET, NATIONAL CITY CENTER 24TH FLOOR, CLEVELAND, OH 44114			WONG, EDNA	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,473

Applicant(s)

BOKISA ET AL.

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date February 5, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

Figures 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicants' specification discloses that "Figure 2 is a graph showing the type of metal deposit at specific current densities for a conventional electroplating bath" and "Figure 3 is a graph showing the type of metal deposit at specific current densities for other conventional electroplating baths".

Specification

The disclosure is objected to because of the following informalities:

page 3, line 4, the word "they" should be amended to the word -- the --.

page 3, line 6, the word "they" should be amended to the word -- the --.

page 3, line 8, the word "they" should be amended to the word -- the --.

page 4, line 6, the word "catholtye" should be amended to the word -- catholyte --

page 5, line 18, the word "dimethylsufide" should be amended to the word --
dimethylsulfide --.

page 5, line 23, the word "triethylamin" should be amended to the word --
triethylamine --.

page 7, line 25, the word "sullfinates" should be amended to the word --
sulfinates --.

page 12, line 19, "3-(2-propynoxy)-2-propenoic" should be amended to -- 3-(2-
propynyloxy)-2-propenoic --.

page 12, line 20, the word "N-hetercyclics" should be amended to the word --
heterocyclics --.

page 12, line 24, "gamma-propynoxy" (both occurrences) should be amended to
-- gamma-propynyloxy --.

Appropriate correction is required.

Claim Objections

Claims **2-6, 10-12, 15 and 17-18** are objected to because of the following informalities:

Claim 2

line 3, the word "sulfonates" should be amended to the word -- sulfonates --.

Claim 3

line 6, the word "N-heterocyclics" should be amended to the word -- heterocyclics -

Claim 4

line 3, the word "sulfonates" should be amended to the word -- sulfonates --.

Claim 5

line 2, the claim contains two (2) periods. The "." (period) after the unit °C should be deleted.

Claim 6

line 15, the word "dimethylsulfide" should be amended to the word -- dimethylsulfide --.

Art Unit: 1753

line 19, the word "triethylamin" should be amended to the word -- triethylamine --.

Claim 10

line 2, the claim contains two (2) periods. The "." (period) after the unit °C should be deleted.

Claim 11

line 3, the word "sullfinates" should be amended to the word -- sulfinates --.

Claim 12

line 6, the word "N-hetercyclics" should be amended to the word -- heterocyclics -

Claim 15

line 2, the word "N-hetercyclics" should be amended to the word -- heterocyclics -

Claim 17

line 3, the word "sullfinates" should be amended to the word -- sulfinates --.

Art Unit: 1753

Claim 18

line 5, the word "N-heterocyclics" should be amended to the word -- heterocyclics -

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims **2-3, 11-15, 17-18 and 20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one sulfur containing brightener selected from the group is further limiting the electroplating bath already comprising the elements recited in claim 1. However, it is unclear if it is.

lines 1-2, it appears that the "at least one sulfur containing brightener" is the same as the sulfur containing brighteners recited in claim 1, line 5. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one sulfur containing brightener" be amended to the words -- wherein

the sulfur containing brighteners are --.

Claim 3

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one organic brightener selected from the group is further limiting the electroplating bath already comprising the elements recited in claim 1. However, it is unclear if it is.

line 2, it appears that the "at least one organic brightener" is the same as the organic brighteners recited in claim 1, lines 5-6. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one organic brightener" be amended to the words -- wherein the organic brighteners are --.

Claim 11

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one sulfur containing brightener selected from the group is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 2-4, it appears that the "at least one sulfur containing brightener" is the

Art Unit: 1753

same as the sulfur containing brighteners recited in claim 9, lines 7-8. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one sulfur containing brightener" be amended to the words -- wherein the sulfur containing brighteners are --.

Claim 12

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one organic brightener selected from the group is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 2-6, it appears that the "at least one organic brightener" is the same as the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one organic brightener" be amended to the words -- wherein the organic brighteners are --.

Claim 13

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the sulfo-betaine brightener is further limiting the

Art Unit: 1753

electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "a sulfo-betaine brightener" is further limiting the sulfur containing brighteners recited in claim 9, lines 7-8. However, it is unclear if it is.

Claim 14

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the acetylenic brightener is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "an acetylenic brightener" is further limiting the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

Claim 15

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the N-heterocyclic brightener is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "an N-heterocyclic brightener" is further limiting the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

Claim 17

lines 1-4, it appears that the "at least one of the two brighteners" is further limiting the sulfur containing brighteners recited in claim 16, line 5. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein at least one of the two brighteners" be amended to the words -- wherein the sulfur containing brighteners are --

Claim 18

lines 1-5, it appears that the "at least one of the two brighteners" is further limiting the organic brighteners recited in claim 16, line 6. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein at least one of the two brighteners" be amended to the words -- wherein the organic brighteners are --.

Claim 20

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the acetylenic brightener is further limiting the electroplating bath already comprising the elements recited in claim 16. However, it is unclear if it is.

Art Unit: 1753

line 2, it appears that the "at least two brighteners" is the same as that recited in claim 16, lines 4-6. However, it is unclear if it is.

If it is, then it is suggested that the -- the -- be inserted after the word "of".

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims **1-22** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 10/772,595. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

Art Unit: 1753

A method of electroplating an alloy comprising nickel, cobalt, and boron comprising the steps of:

(a) providing an electroplating bath comprising an anode, a cathode, water, ionic nickel, ionic cobalt, ionic boron, and at least one brightener selected from the group consisting of sulfur containing brighteners and organic brighteners; and

(b) applying a current to the electroplating bath whereby the alloy comprising nickel, cobalt and boron forms on the cathode.

The independent claims of the present invention recites similar limitations, either alone or in combination with their dependent claims, as that of the claims of the copending application wherein the claims of the present invention encompasses the claim of the copending application. Therefore, the claims would have been obvious variants over each other.

The limitation of "at least two ionic alloy metals" claimed in the copending application (claims 1, 9 and 18) includes ionic boron (claims 2, 16 and 19) as recited in the claims of the instant application (claims 1, 9 and 16), and the electroplating bath of the instant application is open to a fourth alloying metal (claim 8).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by **JP 10-245693** ('693).

JP '693 teaches a method of electroplating an alloy comprising nickel and cobalt, and boron comprising:

(a) providing an electroplating bath comprising:

(i) an anode;

(ii) a cathode (= electronic part);

(iii) water (= from water-soluble salt);

(iv) ionic nickel (= from a nickel salt);

(v) ionic cobalt (= from a water-soluble salt of cobalt);

(vi) ionic boron (= from a water-soluble salt of B); and

(vii) at least one brightener selected from the group consisting of sulfur containing brighteners and organic brighteners (= a heterocyclic quaternary ammonium compound); and

(b) applying a current (page 4, Table, "A/dm²") to the electroplating bath whereby the alloy comprising nickel, cobalt, and boron forms on the cathode (abstract; and page 1, [0001] and [0007]).

The sulfur containing brighteners are selected from the group consisting of

Art Unit: 1753

sulfonic acids and aromatic sulfonates (abstract; page 1, [0007]; and page 1, claim 1).

The organic brighteners are selected from the group consisting of aldehydes and N-heterocyclics (abstract; page 1, [0007]; and page 1, claim 1).

The electroplating bath comprises from about 0.001% to about 5% by weight of at least one brightener (= 0.01 g/l to 1 g/l) [page 2, [0015]].

The electroplating bath has a pH from about 2 to about 6 (= pH 3-10) [abstract; and page 1, [0007]] and a temperature from about 10°C to about 90°C (page 3, Table, "°C").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 1-3 above, and further in view of **Hui** (US Patent No. 6,372,118 B2) and **Caballero** (US Patent No. 5,213,907).

JP '693 is as applied above and incorporated herein.

JP '693 does not teach applying a current density of about 1 ASF or more and about 500 ASF or less to the electroplating bath.

Art Unit: 1753

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 by applying a current density of about 1 ASF or more and about 500 ASF or less to the electroplating bath because the current density is a result-effective variable and one skilled in the art has the skill to calculate the current density that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches current densities of 0.1 A/dm², 1.0 A/dm² and 2.0 A/dm² (page 4, Table, "A/dm²").

As to wherein the electroplating bath comprises about 10 g/l or more and about 150 g/l or more of ionic nickel, about 0.5 g/l or more and about 70 g/l or less of ionic cobalt, and about 0.01 g/l or more and about 20 g/l or less of ionic boron, the concentrations of the ionic metals are result-effective variables and one skilled in the art has the skill to calculate the concentrations that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

As to wherein the anode comprises at least one of nickel, cobalt, at least one

alloy metal, iridium oxide, platinum, titanium, graphite, carbon, and platinum-titanium, it is conventional in the art to have used an anode of the same material that is being electrodeposited. Thus, if nickel and cobalt are being electrodeposited, then a nickel anode and/or a cobalt anode would have been obvious to use.

Furthermore, JP '693 teaches electroplating a Ni-Fe-Co alloy (abstract; and page 1, [0007]), and Hui teaches a method of electroplating a Ni-Fe-Co alloy using nickel and iron anodes (col. 4, line 65 to col. 5, line 3).

Thus, it would have been obvious to one having ordinary skill in the art to use nickel and iron anodes to electroplate a Ni-Fe-Co alloy.

It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

As to wherein the nickel cobalt boron alloy comprises about 2% by weight or less of components other than nickel, cobalt, and boron, the concentration of components other than nickel, cobalt, and boron is a result-effective variable and one skilled in the art has the skill to calculate the concentration that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

With regards to claim 6, Hui teaches that nickel can be provided from nickel sulfate, nickel chloride, nickel acetate, ammonium nickel sulfate, nickel fluoborate and the like; and that cobalt can be provided from cobalt sulfate, cobalt chloride, cobalt acetate, ammonium cobalt sulfate and cobalt fluoborate (col. 3, lines 53-63). Caballero teaches that boron can be provided from boric acid and dimethylamino borane (col. 6, lines 38-46). It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

II. Claims **9-13 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693).

JP '693 is as applied above and incorporated herein.

JP '693 also teaches wherein the electroplating bath comprises a sulfo-betaine brightener (abstract; page 1, [0007]; and page 1, claim 1).

The electroplating bath comprises an N-heterocyclic brightener (abstract; page 1, [0007]; and page 1, claim 1).

JP '693 does not teach about 40 g/l or more and about 100 g/l or more of ionic nickel, about 1 g/l or more and about 30 g/l or less of ionic cobalt, and about 0.1 g/l or more and about 10 g/l or less of ionic boron.

Art Unit: 1753

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with about 40 g/l or more and about 100 g/l or more of ionic nickel, about 1 g/l or more and about 30 g/l or less of ionic cobalt, and about 0.1 g/l or more and about 10 g/l or less of ionic boron because the concentrations of the ionic metals are result-effective variables and one skilled in the art has the skill to calculate the concentrations that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

As to a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath, the current density is a result-effective variable and one skilled in the art has the skill to calculate the current density that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches current densities of 0.1 A/dm², 1.0 A/dm² and 2.0 A/dm² (page 4, Table, "A/dm²").

III. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 9-13 and 15 above, and further in view of **Hui** (US

Patent No. 6,372,118 B2).

JP '693 is as applied above and incorporated herein.

JP '693 does not teach wherein the electroplating bath comprises an acetylenic brightener.

However, Hui teaches a method of electroplating a Ni-Fe-Co alloy wherein the plating solution includes from about 2 to about 50 ml/L hardeners. Suitable hardening agents include 2-butyne-1,4-disulfonic acid (col. 4, lines 19-28).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with wherein the electroplating bath comprises an acetylenic brightener because JP '693 teaches electroplating a Ni-Fe-Co alloy (abstract; and page 1, [0007]). A hardener would have effectively made grain size more fine and slowed down the rate at which the nickel, iron and cobalt ions reach the substrate. This thereby provides a more uniform deposition of the coating on the substrate as taught by Hui (col. 4, lines 19-28).

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA

1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991); *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991) and MPEP § 2144.

IV. Claims **16-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693 ('693)**.

JP '693 is as applied above and incorporated herein.

JP '693 does not teach at least two brighteners selected from the group consisting of sulfur containing brighteners and organic brighteners.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with at least two brightener selected from the group consisting of sulfur containing brighteners and organic brighteners because using two brighteners is merely a matter of choice because the action solves no stated problems and produces no unexpected results, absent evidence to the contrary.

Furthermore, it is conventional in the electroplating art to add more than one additive to the electroplating bath, e.g., more than one brightener, leveler, surfactant, buffering agent, etc.

Art Unit: 1753

As to wherein the electroplating bath comprises from about 0.01% to about 1% by weight of at least two brighteners, the concentration of the at least two brighteners is a result-effective variable and one skilled in the art has the skill to calculate the concentration that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

It has been held that changes in concentration are not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP § 2144.05(b).

As to wherein the electroplating bath further comprises at least one conductivity salt, this would have been well within the skill of the artisan because the total conductivity of a given solution would be the sum of the mobilities of the ions it contains. The mobilities of individual ions differ considerably, so that in any solution it is likely that more current is carried by the cation than by the ion, or vice versa.

As to wherein the conductivity salt is selected from the group consisting of boric acid, sodium sulfate, sodium chloride, potassium sulfate, and potassium chloride, these are conventional conductivity salts in the electroplating art. It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

Citations

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martin et al. (US Patent No. 4,717,458) is cited to teach a process for electrodepositing Zn-Ni-Co-Fe from an aqueous electrolyte comprising an AABB polyamide brightener.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 1753

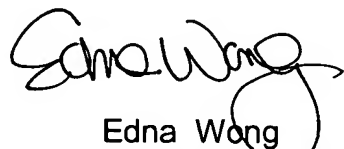
published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Edna Wong
Primary Examiner
Art Unit 1753

EW
May 19, 2005